WHAT IS CLAIMED IS:

1. A thin-film transistor formed on a substrate with a concavoconvex surface, on which:

a source electrode and a drain electrode are formed on adjacent convex portions of the concavoconvex surface; and

a semiconductor channel layer and a gate electrode are formed on a concave area between the convex portions.

2. The thin-film transistor according to claim 1, wherein the concave area has a structure in which a gate electrode, a gate insulating film and a semiconductor channel layer are laminated on a bottom surface of the concave portion in this order.

3. The thin-film transistor according to claim 1, wherein the concave area has a structure in which a semiconductor channel layer, a gate insulating film and a gate electrode are laminated on the bottom surface of the concave portion in this order.

4. A thin-film transistor formed on a substrate with a concavoconvex surface, on which:

either one of a source electrode or a drain electrode is formed on a top surface of the convex portion of the concavoconvex surface;

a semiconductor channel layer and a gate electrode are formed on a side surface area connecting to the top surface of the convex portion; and

remaining one of the source electrode or the drain electrode is formed on a bottom surface of a concave portion connecting to the side surface area of the convex portion.

5. A thin-film transistor formed on a substrate with a concavoconvex surface, on which:

a semiconductor channel layer, a gate insulating film and a gate electrode are laminated on the convex portion of the concavoconvex surface in this order; and

a source electrode and a drain electrode are respectively formed on bottom surfaces of both sides of the convex portion.

6. The thin-film transistor according to claim 1, wherein the concavoconvex surface is formed of a curing resin.

7. The thin-film transistor according to claim 4, wherein the concavoconvex surface is formed of a curing resin.

8. The thin-film transistor according to claim 5, wherein the concavoconvex surface is formed of a curing resin.

9. The thin-film transistor according to claim 1, wherein the semiconductor constituting the thin-film transistor is formed of polycrystal silicon or an organic semiconductor material.

10. The thin-film transistor according to claim 4, wherein

the semiconductor constituting the thin-film transistor is formed of polycrystal silicon or an organic semiconductor material.

11. The thin-film transistor according to claim 5, wherein the semiconductor constituting the thin-film transistor is formed of polycrystal silicon or an organic semiconductor material.

12. The thin-film transistor according to claim 1, wherein the substrate is formed of a glass material, a plastic material and a composite material thereof.

13. The thin-film transistor according to claim 4, wherein the substrate is formed of a glass material, a plastic material and a composite material thereof.

14. The thin-film transistor according to claim 5, wherein the substrate is formed of a glass material, a plastic material and a composite material thereof.

15. A method for manufacturing a thin-film transistor formed by forming a source electrode and a drain electrode on adjacent convex portions of a concavoconvex surface of a substrate with a concavoconvex surface, and laminating a gate electrode, a gate insulating film and a semiconductor channel layer in this order on a bottom surface of a concave area between the convex

portions, comprising:

(1) preparing a substrate and a concavoconvex surface forming substrate on which a concavoconvex pattern is formed;

(2) after sandwiching a curing resin composition by the two substrates, curing the composition and demolding the concavoconvex surface forming substrate to form a substrate with a concavoconvex surface;

(3) after forming a conductive thin film over the entire surface of the concavoconvex surface, further forming a positive type resist film thereon so that the concavoconvex surface is flattened;

(4) exposing and developing the resist film by using a mask having the same concavoconvex pattern as the concavoconvex surface forming substrate, to bare the conductive thin film on the top surfaces of the convex portions;

(5) forming an impurity containing amorphous silicon thin film over the entire surface that has been bared;

(6) removing the resist film and the impurity containing amorphous silicon thin film remaining in the concave areas by exposing and developing from the front side of the substrate;

(7) etching the bared conductive thin film;

(8) forming an amorphous silicon thin film over the entire surface of the substrate after the etching;

(9) carrying out a laser annealing process to form a semiconductor channel layer formed of polysilicon, as well as crystallizing the impurity containing amorphous silicon thin film on the top surfaces of the convex portion to form a source

side diffusion layer and a drain side diffusion layer formed of low resistance polysilicon;

(10) forming a gate insulating film on the semiconductor channel layer, the source side diffusion layer and the drain side diffusion layer; and

(11) forming a gate electrode on the gate insulating film of the upper portion of the semiconductor channel layer.

16. A method for manufacturing a thin-film transistor formed by forming a source electrode and a drain electrode on adjacent convex portion of a concavoconvex surface of a substrate with a concavoconvex surface, and laminating a semiconductor channel layer, a gate insulating film and a gate electrode in this order on a bottom surface of a concave area between the convex portions, comprising:

(1) preparing a substrate and a concavoconvex surface forming substrate on which a concavoconvex pattern is formed;

(2) after sandwiching a curing resin composition by the two substrates, curing the composition and demolding the concavoconvex surface forming substrate to form a substrate with a concavoconvex surface;

(3) after forming an impurity containing amorphous silicon thin film over the entire surface of the concavoconvex surface, further forming a negative type resist film thereon so that the concavoconvex surface is flattened;

(4) exposing and developing the resist film by using a mask having the same concavoconvex pattern as the concavoconvex

surface forming substrate, to bare the impurity containing amorphous silicon thin film on the concave area;

(5) etching the bared impurity containing amorphous silicon thin film;

(6) removing the resist film remaining on the top surfaces of the convex portions;

(7) forming an amorphous silicon thin film on a predetermined area;

(8) carrying out a laser annealing process to form a semiconductor channel layer formed of polysilicon on the concave area, as well as crystallizing the impurity containing amorphous silicon thin film on the top surfaces of the convex portions on both sides of the concave portion to form a source side diffusion layer and a drain side diffusion layer formed of low resistance polysilicon;

(9) forming a gate insulating film over the entire surface; and

(10) after forming a contact hole in the gate insulating film, forming a conductive thin film to form a source electrode, a gate electrode and a drain electrode.

17. A method for manufacturing a thin-film transistor formed by forming either one of a source electrode or a drain electrode on a top surface of a convex portions of a concavoconvex surface of a substrate with a concavoconvex surface, forming a semiconductor channel layer and a gate electrode on a side surface area connecting to the top surface of the convex portion,

forming the remaining one of the source electrode or the drain electrode on a bottom surface of a concave portion connecting to the side surface area of the convex portion, comprising:

(1) preparing a substrate and a concavoconvex surface forming substrate on which a concavoconvex pattern is formed;

(2) after sandwiching a curing resin composition by the two substrates, curing the composition and demolding the concavoconvex surface forming substrate to form a substrate with a concavoconvex surface;

(3) after forming a conductive thin film over the entire surface of the concavoconvex surface, further forming an impurity containing amorphous silicon thin film thereon, and further forming a positive type resist film thereon so that the concavoconvex surface is flattened;

(4) after positioning a photomask, having an opening portion which is a size similar to the film thickness of the conductive thin film and the impurity containing amorphous silicon thin film that are formed on the side surface area of a step portion of the concavoconvex surface, on the side surface area on the positive type photoresist film to be made in contact therewith, exposing and developing from the photomask side to remove the resist film on the side surface area;

(5) etching to remove the bared impurity containing amorphous silicon thin film and the conductive thin film;

(6) removing the resist film on the concavoconvex surface;

(7) forming an amorphous silicon thin film on a predetermined area including the side surface area;

(8) carrying out a laser annealing process to form a semiconductor channel layer formed of polysilicon on the side surface area, as well as crystallizing the impurity containing amorphous silicon thin film of the top surfaces of the convex portions and bottom surface of the concave portion connecting to the side surface area to form a source side diffusion layer and a drain side diffusion layer formed of low resistance polysilicon;

(9) forming a gate insulating film on the crystallized polysilicon; and

(10) forming a gate electrode on the gate insulating film.

18. A method for manufacturing a thin-film transistor formed by laminating a semiconductor channel layer, a gate insulating film and a gate electrode in this order on a convex portions of a concavoconvex surface of a substrate with a concavoconvex surface, and forming a source electrode and a drain electrode respectively on a bottom surface of both sides of the concave area between the convex portions, comprising:

(1) preparing a substrate and a concavoconvex surface forming substrate on which a concavoconvex pattern is formed;

(2) after sandwiching a curing resin composition by the two substrates, curing the composition and demolding the concavoconvex surface forming substrate to form a substrate with a concavoconvex surface;

(3) after laminating a conductive thin film and an impurity containing amorphous silicon thin film over the entire surface

of the concavoconvex surface, further forming a positive type resist film so that the concavoconvex surface is flattened;

(4) exposing and developing the resist film by using a mask having the same concavoconvex pattern as the concavoconvex surface forming substrate, to bare the impurity containing amorphous silicon thin film on the top surfaces of the convex portions;

(5) removing the impurity containing amorphous silicon thin film and the conductive thin film bared by an etching;

(6) removing the resist film on the concavoconvex surface;

(7) forming an amorphous silicon thin film on a predetermined area including the top surfaces of the convex portions;

(8) carrying out a laser annealing process to form a semiconductor channel layer formed of polysilicon on the top surfaces of the convex portions, as well as crystallizing the impurity containing amorphous silicon thin film formed on concave areas on both sides of the top surface of the convex portion to form a source side diffusion layer and a drain side diffusion layer formed of low resistance polysilicon;

(9) forming a gate insulating film on the crystallized polysilicon; and

(10) forming a gate electrode on the gate insulating film.

19. A method for manufacturing for a thin-film transistor formed by laminating a semiconductor channel layer, a gate insulating film and a gate electrode in this order on a convex

portion of a concavoconvex surface of a substrate with a concavoconvex surface, and forming a source electrode and a drain electrode formed respectively on bottom surface on both sides of the convex portion, comprising:

(1) preparing a substrate and a concavoconvex surface forming substrate on which a concavoconvex pattern is formed;

(2) after sandwiching a curing resin composition by the two substrates, curing the composition and demolding the concavoconvex surface forming substrate to form a substrate with a concavoconvex surface;

(3) after laminating a conductive thin film over the entire surface of the concavoconvex surface, further forming a negative type resist film thereon so that the concavoconvex surface is flattened;

(4) exposing and developing the resist film by using a mask having the same concavoconvex pattern as the concavoconvex surface forming substrate, to bare the conductive thin film on the concave portion;

(5) removing the conductive thin film bared by an etching;

(6) removing the resist film on the concavoconvex surface;

(7) forming a gate insulating film over the entire surface thereof;

(8) forming an amorphous silicon thin film on the gate insulating film, and further forming an impurity containing amorphous silicon thin film on the amorphous silicon thin film;

(9) carrying out a laser annealing process to form a semiconductor channel layer formed of polysilicon on the top

surfaces of the convex portions, as well as crystallizing the impurity containing amorphous silicon thin film formed on concave areas on both sides of the top surface of the convex portion to form a source side diffusion layer and a drain side diffusion layer formed of low resistance polysilicon; and

(10) forming a source electrode on the source side diffusion layer, and forming a drain electrode on the drain side diffusion layer.